

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
The 4.9 GHz Band Transferred from)	WT Docket No. 00-32
Federal Government Use)	
)	
)	
To: The Commission)	

**PETITION FOR RECONSIDERATION
OF THE
NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL**

The National Public Safety Telecommunications Council (“NPSTC”) hereby respectfully submits the following Petition for Reconsideration in response to the Commission’s *Memorandum Opinion and Order and Third Report and Order*, FCC 03-99 (released May 2, 2003) (“*Report and Order*”), in the above-captioned proceeding.

With over 74,000 public safety organizations in the United States, it is critical to have a resource and an advocate for public safety telecommunications. That is the primary role of the National Public Safety Telecommunications Council. NPSTC is a federation of public safety associations that encourage and facilitate, through a collective voice, the implementation of Public Safety Wireless Advisory Committee (PSWAC) and 700 MHz Public Safety National Coordination Committee (NCC) recommendations. NPSTC explores emerging public safety telecommunications issues and technologies, and develops recommendations to appropriate governmental bodies to support the broad goals of promoting public safety telecommunications worldwide. Finally, NPSTC serves

as a standing forum for the exchange of ideas and information regarding public safety telecommunications. NPSTC currently consists of the following thirteen organizations:¹

- American Association of State Highway and Transportation Officials
- American Radio Relay League
- American Red Cross
- Association of Public-Safety Communications Officials-International
- Forestry Conservation Communications Association
- International Association of Chiefs of Police
- International Association of Emergency Managers
- International Association of Fire Chiefs
- International Association of Fish and Wildlife Agencies
- International Municipal Signal Association
- National Association of State Emergency Medical Services Directors
- National Association of State Telecommunications Directors
- National Association of State Foresters

¹ A number of Federal agencies are affiliate members of NPSTC and active participants in its ongoing efforts.

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I. INTRODUCTION AND SUMMARY

1. For well over a decade, public safety agencies have urged the Commission to allocate additional public safety spectrum to ease life-threatening frequency congestion, enhance interoperability, and facilitate implementation of new public safety communications technologies. Congress responded by requiring that 24 MHz be reallocated for public safety services from the upper UHF television band, though that spectrum remains blocked by television stations in most major metropolitan areas. The Commission followed this initial reallocation of 24 MHz with the reallocation of 50 MHz in the 4.9 GHz band for wireless broadband public safety use as part of this current proceeding, with the 3rd *Report and Order* released on May 2, 2003.

2. The Commission's *Report and Order* takes important steps in addressing long-standing public safety spectrum requirements. Many of the service rules adopted in the *Report and Order* are well developed and consistent with the needs of public safety agencies. However, as described below, some of the most critical parts of the *Report and Order* were wrongly decided and, unless changed, will significantly impact the ability of public safety agencies to utilize the 4.9 GHz band quickly, effectively, efficiently and at minimum cost. Specifically, these three actions are:

- A. Adoption of an unnecessarily restrictive emission mask that will add significantly to the cost of equipment, forming another niche market for public safety, and potentially cause a significant delay in the introduction of equipment;
- B. Providing of a totally unregulated technology arena within an open licensing system that will potentially lead to technology conflicts within common coverage

areas of licensees to the point that interference renders the band useless, while at the same time severely hindering interoperability; and

- C. Failure to adopt mandatory regional planning and a conflict resolution process for disputes arising between licensees, and within and between Regional Planning Committees (RPCs).

3. The Commission must reconsider its decision by adopting industry-recognized emission masks, developing a clear path toward identification and adoption of a technology standard for general and interoperability use within the 4.9 GHz band, and requiring mandatory regional planning, along with adopting clear rules for use by licensees, RPCs and potentially other conflict resolution bodies to resolve issues around implementation of systems in the 4.9 GHz band.

II. THE COMMISSION MUST ADOPT INDUSTRY STANDARD EMISSION MASKS FROM ADJACENT BANDS TO ALLOW FOR LOW COST IMPLEMENTATION OF EQUIPMENT IN THE 4.9 GHZ BAND.

4. Public safety agencies and several manufacturers commented in this Docket regarding the importance of leveraging “off-the-shelf” commercial technologies such as those used in the 5.4 GHz U-NII unlicensed band to dramatically reduce cost and provide for rapid equipment availability in the 4.9 GHz band.² Yet, the Commission adopted an emission mask that will prohibit any significant use of chipsets and technologies from these adjacent bands.

² See Comments of APCO at III; Comments of Atheros at H; Comments of the District of Columbia, page 6; Comments of Elk Grove Village Fire Department, page 2; Comments of Major Cities Chiefs Association, Page 4; Comments of Motorola, page 12; Comments of the City of New York at VII; Comments of New York State Office for Technology at 19; Comments of NPSTC, page 5; Comments of Wireless Ethernet Compatibility Alliance, page 2.

5. Over the past 6 months, NPSTC members have taken an active role in the proceedings of the Institute of Electrical and Electronics Engineering (IEEE) 802.11 working groups and those of the Dedicated Short-Range Communications (DSRC) Services in the 5.9 GHz band.³ As part of these ongoing activities, we recently discussed the emission masks adopted by the Commission with a number of chipset manufacturers and integrators in the adjacent 5 GHz bands. The comments of Atheros Communications, Inc in this proceeding⁴ are reflective of those from many members of industry who we have recently talked with who are now building equipment in the U-NII bands (and will provide equipment in the DSRC band), and who hope to transfer their technology rapidly and with minimum modification to the 4.9 GHz public safety band:

“As of July 2002, over 25 manufacturers of commercially available 5 GHz IEEE 802.11a equipment have, or will have within this calendar year, the capabilities of ensuring interoperability and compliance with the Carrier Sense and Enhanced Distributed Coordination Function requirements... Adoption of the IEEE 802.11 technologies designed for the 5 GHz U-NII band will yield several important benefits. First it will facilitate development of economies of scale that will quickly result in reduced equipment costs for the public safety community, thereby fostering rapid adoption and realization of its attendant benefits. Second, it will enable 4.9 GHz public safety equipment to also take advantage of “Hot Spot” Internet access and other commercial communications services in the U-NII bands.

Finally, since the draft rules for the DSRC band at 5.9 GHz also specify IEEE 802.11 technologies,⁵ the Commission could expect the availability of interoperable equipment for public safety uses that would operate at *both* 4.9 and 5.9 GHz *as well as* in the U-NII bands, further extending the usefulness of each of these bands for public safety equipment and driving equipment costs downward. Equipment capable of being modified for this purpose will be available this year.”

³ See *Dedicated Short-Range Communications Services in the 5.850-5.925 GHz Band (5.9 GHz Band)*, WT Docket 01-90.

⁴ Atheros Comments dated July 8, 2002 at H.

⁵ [Recently designated the 802.11p series by IEEE.]

6. A public safety advocate, Syracuse Research Corporation, conducted a joint study with NPSTC regarding mask issues. Results are attached as two appendices to this Petition. Appendix A concludes that the outer OFDM subcarriers specified in the 802.11 and DSRC standards will not fit within the adopted 4.9 GHz mask. In summary:

- The emissions mask requirements under these Rules will prohibit the use of any scaled 802.11 OFDM-based technology without serious modification.
- Our analyses, along with industry feedback, indicates that significant additional baseband processing, sub-carrier nulling, and software changes will be necessary to allow 802.11a-based physical layer technologies to operate in this band.
- As a result of this, our ability to use many of the open standards-based technologies from adjacent bands will be severely hindered.
- Furthermore, the creation of a niche broadband Public Safety market will only tend to stifle innovation within the allocation - ultimately limiting Public Safety's access to new technologies and capabilities, and increasing costs.

7. Members of the IEEE 802.11 and DSRC industries who have researched the masks adopted by the Commission in this *Report and Order* have indicated to us their agreement with these conclusions.

8. Because we anticipate the 4.9 GHz Public Safety band being populated with time-division duplex (TDD) technologies, interference prediction is much more complex than typical public safety scenarios where operations are on paired frequencies (frequency division duplex technologies). One especially difficult issue is the fact that mobile interference is just that: mobile. As a result, mobile and portable field coverage from access points (APs, as may be implemented in Hot Spot applications) is affected by both interfering access points, and other interfering mobile and portable units. Many of these

scenarios (especially AP point-to-mobile interference) have been examined previously; here we will look at mobile-to-mobile⁶ interference.

9. NPSTC anticipates a major use of the 4.9 GHz band to be for Hot Spot applications involving a wireless Access Point (probably connected in some fashion to an infrastructure node) serving a number of subscriber units (mobiles and portables).

Appendix B examines three classes of emission masks: “loose” (25 dB ACCPR), “tight” (35 dB ACCPR), and “very-tight” (45 dB ACCPR). We further looked at two scenarios, one in which the adjacent channel mobile interferers operate within a given AP’s service area, and one in which they only operate outside the AP’s service area. The reason for this is that access points may be deployed in a fixed fashion (e.g. a cellular deployment) or as a result to an incident (ad-hoc deployment). In a fixed deployment, the frequency plan may constrain/confine the operation of mobile units to so that will not operate within the service areas of adjacent channel APs (which are associated to mobile units within the service area). In an ad-hoc deployment, all mobile units may operate anywhere, and in fact many adjacent channel interference cases are caused by mobile tactical operations within the service areas of an ad-hoc AP.

10. In both of these cases the “AP” operates at an ERP of 33 dBm, and 35 interfering “mobile” units are randomly placed⁷ - all operating at ERP levels of 26 dBm. The receiver noise floor is taken to be -96 dBm,⁸ and a faded CPC criterion of 18 dB is

⁶ In these cases “mobile” is actually more of a “portable” operation, either through a PDA-based device, or a personnel-based peripheral with a wireless association to an AP (which in an ad-hoc case may in fact be a typical “mobile” or automotive-based unit.

⁷ Either within the simulation domain (area), or within the domain - but outside of the AP service area.

⁸ Corresponding to a receiver requirement equivalent noise bandwidth (ENBW) of 10 MHz, and an overall noise figure of 10 dB.

chosen as the target performance metric.⁹ Our primary concern is the effect that these interfering units have upon “mobile” coverage within the 70-meter “AP” service area. The coverage of both the AP and mobile units is based upon power law propagation, with a path loss exponent of 3.5, and free space loss out to one meter. In order to provide a “cleaner” gradient, $S/(I+N)$ values are truncated at -20 and 80 dB levels.

11. For the case where adjacent channel interferers are outside the AP service areas, results show that coverage/performance degradation with the “loose” mask is very low - on the order of 2%. The other masks show there is little if any performance degradation. Outside the specified AP “service area” the ancillary AP coverage is affected by the introduction of “holes” corresponding to interferer locations - with the “holes” getting larger as the distance from the AP increases, and as mask ACCPR decreases.

12. For the case where adjacent channel interferers are allowed inside the AP service areas, results show that coverage degradation with the “loose” mask is on the order of 50%. The other masks show much lower performance degradation, ranging from 6-18%. However, it is important to remember that the current FCC mask is not the only mask that offers a high level of performance; both the DSRC-c and DSRC-d masks also meet the more stringent ACCPR levels. Outside the specified AP “service area” the ancillary AP coverage is again affected by “holes” corresponding to interferer locations - with “holes” getting larger as the distance from the AP increases, and as mask ACCPR decreases.

⁹ This is arbitrarily chosen, and integrates concepts such as environment fading, signal to interference and noise levels necessary to support a given packet error rate (PER), etc. Note that many if not most of the technologies envisioned employ adaptive modulation that changes in reaction to changing signal and interference conditions. Based upon existing wireless OFDM technologies, this appears to be a reasonable value to target as a performance metric.

13. It should be noted that when utilizing OFDM technologies,¹⁰ adjacent channel interference primarily affects only the outer subcarriers. Since the payload information is interleaved across both time and frequency (the subcarriers) interference is likely to be noticed only as reduced throughput - not total loss of communications. Similarly, a CSMA-DS collision avoidance protocol (see fn 10) will “listen before transmit”. Therefore, if an adjacent channel interferer is so close that the total adjacent channel coupled power is enough to overwhelm the adjacent signal reception, then the CSMA-CD mechanism will sense this, and schedule its transmissions around it. Again, the interference is likely to be noticed only as reduced throughput - not a total loss of communications.

14. In adopting recommendations of the DSRC to date, the Commission has acknowledged that 802.11a/j masks (equivalent to the DSRC-a mask) are relevant for the 5.9 GHz band. Such Intelligent Transportation System (ITS) devices as vehicle collision avoidance systems are clearly no less important a life-safety function than public safety devices envisioned for the 4.9 GHz band. Additionally, with the potential for DSRC devices being installed in every vehicle, along roadways and at intersections, there is the same potential for large numbers of devices to reside within the same coverage area, just as would be the potential in the 4.9 GHz band. These similarities between congestion and criticality of communications, coupled with the extensive research already conducted for ITS implementation, show that these masks should also be usable in the 4.9 GHz band.

¹⁰ Such as 802.11a-based products.

15. In conclusion, the coverage increase of about 30 feet between active units on adjacent channels at the scene of an incident is clearly not justified by the increased cost, delay-to-market for new equipment, and inability to transfer the thousands of hours of highly technical and appropriate standards development efforts underway by IEEE and other Standards Definition Organizations in adjacent bands (and for related technologies such as security and mobility overlays) imposed by the Commission's restrictive mask.

16. Thus, NPSTC recommends that the Commission reconsider its emission masks for this band and adopt instead the 802.11a/j and DSRC-a emission mask, potentially allowing public safety to access not only the 4.9 GHz band, but also adjacent U-NII and DSRC bands from the same device. In areas where the need for tighter emission masks are necessary, or for band-edge equipment where limiting interference to adjacent services is important, the option to apply the DSRC-b/c/d masks should be available to Regional Planning Committees, or to the Commission, for interference protection.

III. THE COMMISSION MUST ADOPT A CLEAR PATH TOWARDS MINIMAL TECHNOLOGY STANDARDS FOR GENERAL USE WITHIN THE 4.9 GHZ BAND, THUS PROMOTING INTERFERENCE-FREE OPERATIONS WHILE SIMULTANEOUSLY PROVIDING INTEROPERABILITY.

17. In the *Second R&O*, the Commission sought comment on whether to require equipment manufactured for use in the 4.9 GHz band to meet widely contemplated, spectrally efficient broadband standards such as the IEEE 802.11a and the European Telecommunications Standardization Institute (ETSI) Broadband Radio Access Network (BRAN) High Performance Local Area Network number two (HiperLAN2) standard. Recognizing that certain regulatory goals could warrant the use of particular standards, including incident scene interoperability and the accommodation of the peak demand that

occurs during multiple emergencies, the Commission asked commenters to address whether the specification of particular standards would promote such regulatory goals.

18. In its filing in response to this question, NPSTC addressed the issue of standards not directly, but in light of ensuring interoperability:

" Because the public safety experience with broadband is very limited, it is difficult to define specific interoperability requirements, other than to state that interoperability remains a critical concern for both day-to-day operations, as well as for major incidents." ¹¹

19. However, the Commission declined to require any particular broadband technology standard for equipment in the 4.9 GHz band, stating,

" While some commenters were supportive of the IEEE 802.11a standard because it is ideal for the mobile applications envisioned for the band, at the same time we do not believe that the desirability of a particular standard is sufficient reason to impose such standard on licensees and manufacturers, or to depart from its long standing goals of minimal regulation and licensee flexibility." ¹²

20. The Commission noted that, notwithstanding their support for the 802.11a standard, commenters also urged the adoption of a flexible band plan that would accommodate other emerging broadband technologies.

21. The Commission went on to state that:

" ... the adoption of any particular standard could preclude newer technologies, and hence impose restrictions on users that would impede their ability to benefit from future equipment that enhances public safety operations. Moreover, inasmuch as this is a new

¹¹ Comments of NPSTC to the 2nd R & O and FNPRM, "Interoperability"

¹² 3rd Report and Order at 48.

band, consideration must be given to the possibility that the current visions for the band may change, especially considering the wide flexibility that users have been afforded for operations in the band.”¹³

22. Finally, the Commission disagreed with Atheros that there would be sufficient interoperability advantages for imposing a standard:

“ We believe that the mandatory cooperation among licensees will go a long way towards attaining adjacent and cross-jurisdiction interoperability. Further, notwithstanding the cooperation requirements for the band, public safety officials throughout the nation are already engaged in substantial efforts to plan and coordinate operations with nearby jurisdictions. Therefore, we believe that interoperability goals can be attained without imposing equipment standards on users and manufacturers, especially in light of the fact that such an imposition may actually serve to hinder the ability of public safety entities from utilizing emerging technologies in the band. Accordingly, no particular equipment technologies will be imposed on equipment manufactured for use in the 4.9 GHz band.”¹⁴

Lack of A Standard Could Leave the Band Unusable in High Overlap Areas

23. NPSTC has identified the possibility of as many as a dozen or more special districts, local, state and tribal licensees needing to operate within the same coverage area.¹⁵ We believe that this situation will be pervasive rather than isolated, particularly in major metropolitan areas. In these situations, each agency may have identified a technology that it intends to use. Certainly, no agency, be it local, county/parish, or state will want to implement differing technologies in different parts of its jurisdiction solely

¹³ *Id.*

¹⁴ *Id.* at 49.

¹⁵ For example, the San Francisco Eastbay area where overlap could occur between the AC Transit District, Bay Area Rapid Transit District (BART), California Department of Transportation, California Highway Patrol, City of Oakland (EMS, fire, police and public works), County of Alameda Sheriff, East Bay Regional Parks District, Oakland Airport Authority and Oakland Coliseum Authority. BART and the Oakland Police Department are already major users of 802.11b “Hot Spot” technology.

to provide for technology compatibility with other licensees in different locations; such a requirement would severely hamper the ability of any jurisdiction to rapidly move its own resources within its boundaries. Thus, it is probable that technology selection could be driven by the user with the widest coverage requirement, that primarily being a state. Should agencies differ in their technology selection, the result in overlap areas will not only be interference, but interference to the degree that complete disruption of all communications in the band occurs. The requirement of coordinating these uses as envisioned by the Commission in the *3rd Report and Order* will be difficult, if not impossible, in the highly mobile environment that will exist in this band. It is not sufficient, nor workable, for the Commission to simply “mandate cooperation among licensees.” This is not a solution to spectrum management; it is an abrogation of the Commission’s statutory responsibility to efficiently manage the spectrum.

A New Era Opens For Public Safety Communications

24. Much has happened in the broadband arena since the initiation of this proceeding by the Commission in 2000. In the intervening months since Comments were initially filed, NPSTC and many individual agencies have had an opportunity to become deeply involved in broadband efforts, and to enjoy first-hand experience with some of these exciting technologies. NPSTC now sees the opening of the 4.9 GHz band as creating, for the first time since the 1930’s, a new way of doing business for public safety communications. Our vision is one of “no more stovepipes for individual agencies, individual disciplines, or levels of government.” Rather, using IP-based applications with appropriate authentication, privacy and security, users should be able to roam seamlessly

across infrastructures (their own and others), with their traffic routed appropriately to its destination across an Internet-type backbone.

25. For this to happen, minimal standards are required at the Physical and MAC layers (Layers 1 and 2 of the OSI Model). Through our participation in ongoing efforts within IEEE 802 and DSRC, we believe that these basic standards are close at hand. The primary items awaiting completion (but clearly underway) surround issues of Quality of Service (QoS) and Security. We believe that these Layer 1 and Layer 2 standards can be completed and published as open standards within the next 18 months.

26. Riding on top of these lower two layers are the potential for interesting network implementations such as Mobile Adhoc Networks (MANETs) where the devices carried by the users themselves form a robust network at the scene of an incident that seamlessly adds and removes other user nodes as they enter or leave the incident coverage area; there is no need for underlying infrastructure. Linkage to outside infrastructure is provided either by insertion of wired access point(s) or wireless link(s) in a different band (such as the 700 MHz wideband channels). In fact, there is no reason that specialized platforms such as aeronautical video could not be just another MANET node, providing real time streaming video to any user on the network who is authorized to receive it. Other network solutions exist that would support “Hot Spot” access points and/or a community-wide infrastructure. Importantly, all of these topologies ride on top of the standardized Physical and MAC layers, in the same manner as they exist today in the 802.11 world.

27. Finally, these network layers support any properly designed IP-based application that agencies desire to implement (voice, messaging, database access, streaming video,

etc). Imbedded QoS functions in the lower OSI layers ensure that important messages, based upon user-defined parameters, are delivered in a timely manner.

28. We also draw the Commission's attention to the robustness of the IEEE 802.11 architecture. For example, the selection of the initial 802.11b standard did not hamper recent forward migration to 802.11g with its inherent increase in throughput; these standards coexist today, demonstrating IEEE's commitment to providing graceful forward migration of technologies. Our involvement in the IEEE 802 processes leads us to believe that the concept of graceful forward migration of technologies will continue to exist, leaving flexibility for the inclusion of new technologies as they are developed.

29. NPSTC does not propose that the Commission stop implementation of this much-needed spectrum. Rather, we propose that once a standard is identified, users be given a definite time to migrate to the standard. By adopting the relaxed emission masks proposed above, permitting the rapid introduction of equipment based upon standards derived from adjacent bands, the cost of subscriber RF modems in this band is anticipated to be in the few hundreds of dollars at the most, versus potentially thousands of dollars with the current emission masks (based upon discussions with a number of manufacturers). These lower prices will permit a much more rapid changeout of equipment, leading NPSTC to propose a three year transition period following identification and adoption of an open standard for this band.

30. NPSTC assures the Commission that it will maintain an active role in driving these Layer 1 and 2 standards to rapid completion. NPSTC has a history of delivering on

its commitments to the Commission, as recently experienced with activities surrounding the 700 MHz band.

Standards Enable the Development of A Comprehensive Security Suite

31. Authentication of users and privacy/security requirements, both at the network and application layers, are critical components of today's public safety systems. No longer are these requirements applicable just to law enforcement. For example, the Health Insurance Portability and Accountability Act of 1996 (HIPAA) has mandated similar privacy and security requirements on applications in the EMS field.

32. In today's environment, security requirements are often application based, requiring that critical security modules be approved individually by Federal, state and sometimes local agencies to meet internal and statutory requirements.

33. Once basic standards are defined for this band, the opportunity for development of a comprehensive suite of authentication, privacy and security standards could significantly reduce the burden placed upon approval authorities and software developers, significantly decrease the time-to-market and cost for applications with security requirements, and make security much more inclusive within daily system operations.

Minimum Standards Ensure Interoperability

34. NPSTC believes that minimum technical standards are a critical element for interoperability in the 4.9 GHz band, just as standards were deemed necessary for interoperability in the 700 MHz public safety band. Interoperability is correctly a major post-September 11 priority of the Administration and Congress at the Federal level, and in Statehouses and at the local level across the nation. The 4.9 GHz band is the largest single allocation of virgin and unencumbered spectrum ever made to public safety, and must not be allowed to become a tangle of incompatible, non-interoperable technologies. Without the mandate for at least a basic standard, there simply is no assurance of interoperability. Just as with the 700 MHz band, interoperability can not be left as an option to licensees.

IV. THE COMMISSION MUST MANDATE ADHERENCE TO REGIONAL PLANS AND PROVIDE FOR INTRA- AND INTER-REGIONAL DISPUTE RESOLUTION.

35. NPSTC applauds the Commission's decision to issue licenses to eligible entities on a geographical basis for the entire 4.9 GHz public safety band, allowing maximum flexibility for implementation of the band.¹⁶ Under these circumstances, we do not see any drawback to issuing licenses to agencies prior to completion of a Regional Plan for their area. However, once a Regional Plan is completed, compliance with that plan must be mandatory.

36. While the Commission appropriately recognized the need for Regional Planning Committees in this band, and provided timeframes for their formation and production of a

¹⁶ 3rd Report and Order at 27 and 28.

Regional Plan document, the Commission did not make compliance with those Regional Plans mandatory. This may have been an oversight, and in any case must be corrected.

37. The Commission's Spectrum Policy Task Force Report identified several models for spectrum management, highlighting public safety spectrum as being one of the primary user groups needing the *Command and Control* model. However, the Commission's use of "mandatory coordination amongst users in the same geographic area"¹⁷ is more reflective of the *Commons* model, and unacceptable to public safety users who must have assurance that spectrum will be available to support critical communications involving the safety of life and property.

38. The Commission also did not provide a mechanism for dispute resolution either within or between Regions, as was required for the 700 MHz band. NPSTC suggests that the process for intra-regional disputes be required within each Regional Plan. Several methods are available for resolving inter-regional disputes, either through Memorandums of Understanding as recommended for the 700 MHz band, or through a non-involved third party in a role similar to that which NPSTC has offered to play in the 700 MHz band. In any case, we know from prior experience¹⁸ that these disputes can be time consuming and can result in significant implementation or operational delays. In lower bands, these delays impacted only the specific frequencies and involved agencies; with band licensing these delays could impact all users of the band in that particular geographic area.

¹⁷ *Id.* At 40.

¹⁸ For example, the dispute between Regions 20 and 28 in the NPSPAC band.

NPSTC Will Assist The Commission With Implementation of The 4.9 GHz Band

39. NPSTC offers its assistance to the Commission in two important areas, through its 4.9 GHz Task Force:

- A. NPSTC is examining the enhancement of its fully operational CAPRAD database to include the 4.9 GHz band in support of Regional Planning Committees.
- B. NPSTC will undertake the industry formulation of a best practices Regional Plan to serve as a model for Regional Planning Committees, and potentially as a de-facto plan in areas of the United States where RPC's have not formed for the 4.9 GHz band.¹⁹

V. CONCLUSIONS

40. For the reasons set forth above, the Commission must reconsider its 3rd *Report and Order* in the manner described herein.

Respectfully submitted,

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July 30, 2003

¹⁹ 3rd *Report & Order* at 40.